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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,805	12/09/2003	Andrew D. Park	122/20	2708

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CHARLOTTE, NC 28210

EXAMINER

RUDDOCK, ULA CORINNA

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,805

Applicant(s)

PARK ET AL.

Examiner

Ula C. Ruddock

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13, 15-17 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13, 15-17, and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The Examiner has carefully considered Applicant's amendment and accompanying remarks filed April 7, 2006. The double patenting rejections and the 112, 2nd paragraph rejections have been overcome.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Terminal Disclaimer

3. The terminal disclaimer filed on April 7, 2006, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/664233 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

4. Claims 1-5, 7-10, 13, 15, 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickson (US 2004/0216595) in view of Park (US 5,635,288). Dickson disclose metallic armor wherein a backing portion is adhered to a durable metallic facing element (abstract). The metallic armor is useful in protecting against multiple small arms bullets [0002-0004]. The formed metallic facing element has a thickness of between about 0.02-0.50 inches [0007]. The backing portion includes a fiber composite substrate with a thickness of between about 0.06 inches and about 3 inches [0008]. There may also be an adhesive layer between the metallic facing element and the backing portion having a thickness of between about 0.0005-0.90 inches [0009]. The formed metallic facing element may be formed of titanium, aluminum, and steel plates [0021]. The metallic facing element is a continuous monolithic plate that is generally flat [0043]. The

backing portion includes aramid or polyethylene and M5 fibers [0050]. The fibers can be grouped together in yarn bundles [0053]. The fibers have a tenacity equal to or greater than 7 grams per denier [0055]. The adhesive layer comprises epoxies, polysulfides, polyurethanes, polyolefins, and acrylics [0064]. The areal density of the metallic facing element is no more than about 2.2 psf and the areal density of the fiber substrate/backing is about 2.8 psf [0065]. The layers of the backing were placed under pressure of 3000 psi [0069]. The combined thickness of the armor can be .0805-3.59 inches (claim 24). Dickson disclose the claimed invention except for the specific teaching that the fibers have a dpf of less than 5.4 or less than 2, as required in claims 1 and 13 of the present invention.

Park (US 5,635,288) discloses ballistic resistant composite for hard-armor applications comprising a rigid plate and a ballistic laminate structure supported by the plate. The laminate structure includes first and second arrays of high performance, unidirectionally-oriented fiber bundles (abstract). The bundles include fibers chosen from the group consisting of aramid fiber and ultra high molecular weight polyethylene (col 3, ln 26-31). The rigid plate includes a group consisting of steel, aluminum, titanium, and graphite (col 3, ln 40-43). An adhesive material is provided for adhering the ballistic laminate to the plate means, preferably an epoxy resin (col 3, ln 47-50). In a preferred embodiment, a Kevlar fiber can be 1.5 denier per filament (col 5, ln 48-49). The rigid plate may be flat or contoured depending upon the particular end use (col 7, ln 23). It would have been obvious to one having ordinary skill in the art to have used Park's disclosure of a bundled fiber having a dpf of 1.5 in the armor of Dickson, motivated by the desire to create an armor material that is lightweight yet maintains improved penetration resistance.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dickson (US 2004/0216595) and Park (US 5,635,288) as applied to claim 1 above, and further in view of Klintworth et al. (US 2003/0139108). Dickson and Park disclose the claimed invention except for the teaching that the means for adhering the rigid plate to the fabric is a polymeric film.

Klintworth et al. (US 2003/0139108) disclose hard armor panels including a ceramic tile adhered to a backing panel (abstract). The ceramic tile may be made of silicon carbide or boron carbide [0019]. The backing material comprises p-aramid (Kevlar) fibers [0020]. Preferably, the backing element is fixed to the rear surface by a film adhesive [0032], which the Examiner is equating to Applicant's polymeric film. It would have been obvious to one having ordinary skill in the art to have used Klintworth's film adhesive in place of the epoxy adhesive of Park and Henderson, motivated by the desire to create a laminate have increased lamination strength.

Response to Arguments

6. Applicant's arguments with respect to claims 1-10, 13, 15-17, and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C. Ruddock whose telephone number is 571-272-1481. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

UCR *we*

Ula Ruddock
Ula C. Ruddock
Primary Examiner
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